TITLE II ENVIRONMENTAL COMPLIANCE FACESHEET

Title of MYAP: Timbuktu Food Security Initiative (TFSI)

FFP Grant Number: TBD

Country/Region: Mali

Implementing Partner: Africare

Funding Begin: 08/01/08 **Funding End:** 07/31/2013 **LOA Amount:** $11,029,900

Sub-Activity Amount: N/A

Resource Levels: **Commodity:** 6,570 MT
Monetization **202(e):** $1,101,300 **ITSH:** $1,255,100
Request: $ 6,600,000

IEE Prepared by: Edward Baxter – Country Representative **Date:** June 30, 2008

IEE Amendment (Y/N): No **If "Yes" Date of Original IEE**

ENVIRONMENTAL ACTION RECOMMENDED: (Place X where applicable)

☒ **Request for Categorical Exclusion(s):** activities have no adverse effect (i.e., training, technical assistance; not to include any infrastructure rehabilitation.)

☒ **Negative Determination:** no significant adverse effects expected for activities which are well defined over life of the award.

- ☐ **without conditions** (no special mitigation measures needed)
- ☒ **with conditions** (mitigation measures specified)

☐ **Positive Determination:** potential for significant adverse effect of one or more activities. Appropriate environmental review needed/conducted.

☐ **Deferral:** elements not well defined; activities will not be implemented until amended IEE is approved. Briefly describe here:

Environmental Media and/or Human Health Potentially Impacted
(check all that apply):

Air☐;*Water*☒; *Land* ☒; *Biodiversity* (specify) ☒;*Human Health* ☒; *Social* ☒;*None*☐

Summary of Findings
Activities to be implemented under this MYAP include:

1. Community Capacity building /Disaster Mitigation
2. Support to increasing agricultural and livestock production
3. Improve land use/natural resources management
4. Support household nutrition/sanitation and HIV/AIDS awareness/ education
5. Support with income generation opportunities/storage
6. Vulnerable households direct food provisions and safety nets

There will be no foreseeable significant adverse impacts with the following interventions: (a) community capacity building; (b) support to household nutrition/sanitation/HIV/AIDS awareness raising and education; and (c) vulnerable household direct food provisions/safety nets. Furthermore, there are no significant adverse impacts for project interventions/activities like: small scale agricultural production/livestock, land use/natural resources management activities and income generation interventions and storage. However, Africare, in collaboration with the beneficiaries and the local authorities and partners will take appropriate mitigation actions under each intervention to minimize or eliminate negative environmental impacts. The conditions presented in this IEE are intended to make certain that these planned activities will be implemented in a manner which ensures that they have no significant environmental impact by following procedures detailed in the USAID Africa Bureau *Environmental Guidelines for Small-scale Activities in Africa* 2 Edition (2007).

(a) Small scale agricultural production/livestock production; There will be no pesticides or fertilizers used. No genetically modified seeds will be used under this program. Only improved seeds and adapted to local conditions and local animal breeds approved by the Malian ministry of agriculture and livestock will be promoted. No seeds /livestock will be introduced from abroad without authorization and verification by the ministry of agriculture to avoid introduction of crop/animal diseases/pests and to ensure higher crop/livestock productivity. The use of organic manure will be encouraged for farmers. Regular monitoring visits will be done for early detection of negative environmental impacts and reported on a quarterly basis. The farmers will be trained to use the best farming practices and environmental protection techniques and soil erosion checks.

(b) Land use/natural resources management: The following environmental mitigation actions will be applied: All shrubs, trees and grasses to be used for anti-erosion and reforestation under the proposed project will be approved by the government authorities. The TIFSI project will not introduce new species which have not been approved by the Government of Mali. Under this intervention, Africare will not distribute or sell any chemically treated tree/fruit seeds, but will train farmers in the proper production of compost from animal waste and other vegetative wastes instead of using inorganic fertilizers or other pesticides.

Africare will use participatory monitoring approaches involving the community members, and other partners for the early detection of current and potential negative

impacts and appropriate actions to be taken. The quarterly reports on the land use/NRM necessitated by the activities with the *Périmètres Irrigués Villageois* (PIV), the wells for gardening and potable water will contain the assessment of environmental impacts and applicable mitigation measures.

(c) Income generation /storage interventions: Vocational skills training related to income generation activities and literacy sessions will use materials that have less impact on the environment. Participatory approaches will be used in identification of sites for construction of storage facilities for the cereal banks and input units; written authority from local authorities will be sought to cut trees and to use the land, and community members mobilized for active participation. They will also be requested to make their in-kind contributions so as to minimize social conflicts and problems. The land disturbed/leveled for storage facilities construction will not exceed 10m by 10m. The remaining part of sites after storage facilities construction will be re-leveled and re-planted with grasses to avoid excessive water run-off. All un-used construction materials such timber/poles off-cuts, stones and other wastes will be cleaned after construction and deposed in an environmental sound manner.

Overall, the proposed environmental mitigation actions for this IEE are in consonance with the Malian's code of environmental protection and sustainable development which identifies the need and linkage of improving and protecting environment as essential element for sustainable development and equitable economic growth.

USAID APPROVAL OF ENVIRONMENTAL ACTION(S) RECOMMENDED:

Clearance:

Mission Director: _____ Date: _____

Mission Environmental Officer: for Aug M. Dembele Date: July 15, 08

or

Regional Environmental Officer: _____ Date: _____

Regional FFP Officer: _____ Date: 7/21/08

Agreement Officer: _____ Date: 8-5-08

Concurrence:

DCHA Bureau Environmental Officer: _____ Date: 8/6/08

Approved: ☒

Disapproved: ☐

TITLE II INIITAL ENVIRONMENTAL EXAMINATION

Program/Project Data

MYAP Program Activity: Improving Food Security in two Circles of Goundam and Dire in northern Mali

1. Background and Activity Description

1.1 Background

Since the mid-1970s, Africare has been implementing emergency food assistance, food security, agricultural production, maternal and infant health programs in the rural and remote regions of West and Central Africa. A high percentage of these projects are or have been in the high risk sudano-sahelian areas of Burkina Faso, Chad, Guinea, Mali and Niger. Many of these same interventions have significantly contributed to increased food availability, elevated income levels, disease prevention, child survival, and the mitigation of civil strife. Africare's approach to food security and related development initiatives is centered on capacity building and participatory development at the community level. African governments have recognized Africare's ability to energize poor, rural communities in the pursuit of positive economic change.

Mali is one of the poorest countries in the world with a per capita income of US$380 in 2005. Reasons are its limited resource base, landlocked status, vulnerability to external shocks, poor infrastructure, low levels of human development, and weak administrative capacity. Despite these constraints, Mali has initiated comprehensive reform programs and has made commendable progress on the economic, political and social fronts over the past decade. Since 1994, economic growth rates have averaged more than 5 percent.

Mali's overall economic performance is largely driven by agriculture. The agricultural sector employs 80-90% of the working population. During the last two decades, rain-fed cotton cultivation and rice cultivation have expanded considerably. Nevertheless, land productivity, expressed in crop yields, increased only for rice. Yields of other crops and cotton are stagnant or declining from already low levels. The main objectives of the Government's agricultural policy are to:

i) increase the contribution of the rural sector in Mali's economic growth,
ii) reinforce food security,
iii) improve incomes and well-being of the rural population, and to
iv) protect the environment and assure a sustainable management of the natural resources.

In 2002, Mali adopted a new *National Strategy for Food Security* that emphasizes transition from crisis management and emergency relief to long-term structural food security by building sustainable food security at the local level. The government takes a decentralized approach by pursuing structural food security. The aim is that all 703 communes, 49 circles and 8 regions develop their own food security programs, and thus put local people in charge of the agenda.

During the last decade, Mali has made some remarkable progress towards food security. This was due to an increase in food and cash crop production, predominantly rice, and

livestock export, all as a result of several years of good rainfall and increases in the area under cultivation. Nevertheless, this improvement masks the unequal access to food across the country, identified as one of the major challenges for Mali in obtaining nationwide food security (National Response Plan, CSA, 2005).

Availability of cereals varies strongly according to the region. The northern regions-- Timbuktu, Gao, Mopti, Kidal and northern Kayes-- are chronically deficient in cereal availability. More precisely, 166 communes (or 24% of communes nationwide) have been identified being "structurally food insecure," which means facing a food crisis at least once every two or three years. In Timbuktu, 75% of the communes are structurally food insecure, and cereal production covers only 4.5 months of yearly consumption.

In addition, the poverty rate in Timbuktu, at 77% of the population, is higher than the national average. This situation is essentially due to natural constraints (isolation, climatic risks), social problems (mobility of the population, insecurity), lack of basic infrastructure (schools, health centers, water points), and food shortages.
The Timbuktu region covers 40% of the national territory, with a surface of 497,926 km^2. It is organized into five circles, 52 communes (including 3 urban communes), and 969 villages and fractions. The climate varies from sahelian in the south, to sahelo-saharan further north, and finally turns into the Saharan climate about 100km north of Goundam and Timbuktu. Rainfall varies from 100 to 300mm from north to south, with 10 to 30 days of rainfall distributed over 3 to 4 months. There are three seasons: i) the rainy season from July to September, ii) the dry and cold season from October to February, and iii) the dry hot season from March to June. The Niger River, which crosses through the region for more than 400 km, is the only permanent source of water in the region; The Niger has multiple arms, which provide water for two extensive lake and pond systems on both sides of the river when the water level rises due to rains upstream.

The population of the Timbuktu region is estimated to be 534,300 people (2004). Most people are concentrated along the Niger River and in the lake region, pursuing agricultural activities, livestock production, and fishing. The population is composed of a number of ethnic groups, specialized in various sectors: 33 % Songhai (agriculture, livestock, fishing), 27% Tamacheq (Touareg: livestock; Bellah: agriculture, livestock, fishing), 18% Peulhs (livestock and agriculture), 11% Bambara, Bozo, Somonos (agriculture and fishing), 7% Maure Arabs (livestock), and 4% others (government administration and private business).

From 1997 to 2002, Africare implemented Title II Food Security Initiatives in Mali.
The Goundam Food Security Initiative (GFSI), in northern Mali, promoted capacity building, diversified agricultural production, and increased value added, and improved nutrition in Goundam and Diré covering 15 communes and 50 villages.

The new MYAP is proposed for the period of 2008 – 2012 is called: "**Timbuktu Food Security Initiative**" (**TFSI**). Its objectives and key indicators are described below.

1.2 Description of Activities

The four strategic objectives (SO1-SO4) of TFSI are as follows:

SO1: Enhancing Community Capacity to Manage Risks and cope with shocks Linked to Food Insecurity

SO2: Increase agricultural, livestock and fishing productivity

SO3: Increase the purchasing power of households

SO4: Improve the health and nutrition of households

Strategic Objective 1: Enhancing Community Capacity to Manage Risks and cope with shocks Linked to Food Insecurity

- Strengthen capacity of village based food security committees (CSA); reinforce synergies between CSAs at village and communal level.
- Develop emergency plans and programs (e.g. food distribution, food for work, seed distribution, reconstruction of animal population, reconstruction of housing etc)
- Provide credit for food storage
- Supporting activities that are undertaken under SO1-SO3 are among others: diversification of activities, sustainable environmental management, improved management and control of water (wells, water control structures in ponds, irrigated perimeters)

Strategic Objective 2: Increase agricultural, livestock and fishing productivity

River based rice-cropping system

- PIV: Increase the number and area of PIVs (Irrigated perimeters, or *Périmètres Irrigués Villageois*), in order to i) increase access of farmers to irrigation infrastructure, and to ii) augment the PIV surface per farmer.
- PIV: Introduction of SRI (*Système de Riziculture Intensive*) on PIVs to increase yields, and to diminish production costs (reduced water consumption and irrigation costs by 50%, reduced costs for inputs)
- PIV: Diversification into cash crops such as wheat, anis and cumin, in order to improve revenue. Intensification of cropping techniques to increase yields.
- Ponds: Intensification of deepwater rice production through improved management and control of water through small infrastructures, improved cropping techniques, and improved management and production of the Bourgou (animal forage) pastures (*Echinochloa stagnina*)
- Livestock sector: improve feeding strategies, and the use of available resources for fodder, such as crop residues.
- Fishery: Improve fishing equipment; Improve capacity for quality transformation of fish
- Agroforestry: Promote useful tree species for firewood, construction wood and fruit production, while at the same time protecting the environment.

Lake based recession agricultural system

- Promote crop diversification, such as millet, sweet potato, corn, gumbo, niebe, *Hibiscus sabdariffa,* and wheat.
- Promote the testing of improved and adapted varieties, and improve cropping practices
- Test new systems of irrigation (PIV) and improve water management and control through small infrastructures
- Livestock sector: improve feeding strategies, and the use of available resources for fodder, such as crop residues, improved management of bourgou pastures
- Fishery: Improve fishing equipment; Improve capacity for quality transformation of fish
- Promote poultry production (geese, ducks etc)
- Facilitate conflict resolution between fishermen, farmers, and herders
- Improve technical integration of agriculture, livestock and fishery, by creating synergies among the sectors for an improved production
- Agroforestry: Promote useful tree species for firewood, construction wood and fruit production, while at the same time protecting the environment.

Pastoral System

- Promote income generating activities and provide investments for instance through food-for-work
- Promote micro-credit systems with conditions adapted to the local situation
- Support the reconstruction of small ruminant herds for people who lost their herds
- Support activities in the livestock sector (sheep fattening, milk goats, promotion of wool sheep), transformation of livestock products, access to veterinary services.
- For population having access to lakes, support agricultural activities through improved seed supply and cropping techniques
- Promote vegetable growing for interested population
- Promote handicraft
- Provide support for the establishment and management of cereal banks
- Promote improved pasture management and agroforestry activities

Strategic Objective 3: Increase the purchasing power of households

- Promote the transformation, conservation and marketing of agricultural, livestock and fishery products
- Assist in the marketing of (new) cash crops, and provide information on agricultural prices
- Support farmers organization in relation to production, storage, marketing of goods, and in the acquisition of inputs

- Diversify income generating activities for women (such as vegetable growing, intensification of small ruminants raising, handicrafts)
- Promote private sector and micro-enterprises (transformation and marketing of products)
- Improve management and financial skills of community members
- Provide and facilitate access to credits for community organizations
- Mobilize local resources
- Promote functional literacy in local languages

Strategic Objective 4: Improve the health and nutrition of households

- Strengthen capacity of population and health workers in nutritional aspects
    - Change of dietary habits
    - Promote the health of mother and child
    - Promote hygiene
    - Support prevention of HIV/AIDS
    - Support prevention of malaria, diarrhea, bilharzias
- Invest in (low cost) health and sanitary equipments and health infrastructure (e.g. drinking water wells)

2. COUNTRY AND ENVIRONMENTAL INFORMATION (BASELINE INFORMATION)

2.1 Locations Affected

The TFSI will extend its range of intervention from the two Circles of Goundam and Dire, which were part of the first and second Phase, to the Circles of Timbuktu and Niafunke, thus covering four out of the five Circles of the Timbuktu region. The Gourma-Rharous Circle is not included, due both to the distance from the project zone and current security concerns.

From the 15 communes of the second Phase, activities in three communes will be scaled back, (Tin-aicha, Andarmalane, and Gargando), and four new communes will be added (Soboundou, Banikane-Narhawa, Soumpi of Niafunke, and Alafia of Timbuktu).

15 out of the 18 project communes are classified by the National Food Security Commission (*CSA, Commissariat à la Sécurité Alimentaire*) to be structurally food insecure. The three exceptions are Bourem Sidi Amar, Tinguireguef, and Alafia, which are located close to the Niger River, and thus have realized some of their irrigation potential. Nevertheless, it should not mask that a large part of the population within the communes do not have optimal access to irrigation infrastructure and still face major problems in regards to food security.

The project will adapt its approach based on the lessons learned from the first and second phases. Among the communes to be carried over from the second phase, key villages will be selected where i) targeted activities will be implemented in order to guarantee the sustainability of project interventions already undertaken, and ii) a farmer-to-farmer approach will allow diffusion of innovations into the adjacent areas that did not

previously receive any project support. The approach in the new communes will focus on adapting the interventions according to the agricultural, livestock or fishery potential, local opportunities, and interest of the population, not according to a predetermined set of activities.

The project zone covers three major land use systems: the pastoral system (11 communes), the lake based recession agricultural system (8 communes), and the river based rice-cropping system (13 communes). The breakdown of these communes by land use system is shown in Table 2.

Table 2: TFSI communes, distribution according to land use systems, population and number of ponds

Circle	Commune	Pastoral Zone	Lake Zone	River Zone	Population(1996)	No of ponds
Goundam						
	Douékiré	x *		Xxx	18,214	65
	Télé		Tele		6,009	
	Tonka	x	Horo, Fati	Xx	46,252	
	Goundam		Tele	X	12,197	5
	Bintagoungou	xx	Faguibine		9,637	
	Kaneye	x		Xx	3,058	13
	M'Bouna	xxx	Faguibine		10,080	
	Essakane	xxx	Faguibine		16,712	
Dire						
	Arham			Xxx	2,750	24
	Bourem Sidi Amar			Xxx	8,000	15
	Kondi	x		Xx	4,455	23
	Tindirma	x	Fati	Xx	7,133	42
	Tinguireguef			Xxx	4,524	
Niafunke						
	Soboundou	x	Takadji, Koboro, Danga	Xx	29,279	21
	Banikane-Narhawa			Xxx	15,421	73
	Soumpi	x		Xx	17,508	27
Timbuktu						
	Alafia	xxx		Xxx	12,000	18
Total					228,861	326

* Importance: xxx: high; xx: medium; x: low

** **Bold Font**: new communes

Population figures are from the 1996 population survey. With an average yearly increase of 2.2%, from a total population of 228,000 in 1996, it was estimated to be 290,800 people in 2007. The economy of the project zone is based on agriculture (mainly sorghum and rice production), nomadic livestock production, and fishing. The climate is

sahelo-saharian, with a yearly average rainfall of 150-200mm, insufficient for rain-fed agriculture. There were major food crises in the zone in 1969, 1973, 1985, and 2004.

2.2 National Environmental Policies and Procedures (of host country both for environmental assessment and pertaining to the sector)

The government of Mali, in collaboration with partners such as World Bank, has identified the need of paying attention and increase efforts in the environment reform in order to stop degradation in the Sahel. The degradation due to agriculture production is targeted. The Natural Resources Management Project (PGRN) was created in the 90s by the Malian government to manage and prevent land degradation. In the recent past years, Mali has also adopted a national environmental policy. It is being assisted in the implementation of that policy by, USA, Norway, World Bank, Germany, FAO, WFP, and UNDP

3. EVALUATION OF ACTIVITY/PROGRAM ISSUES WITH RESPECT TO ENVIRONMENTAL IMPACT POTENTIAL

The following points describe the specific interventions proposed in part of TFSI and give a certain analysis of their potential environmental impact.

3.1 Enhancing Community Capacity to Manage Risks and cope with shocks Linked to Food Insecurity

Strengthening of community capacities on the SCAP-RU (the community based early warning and disaster preparedness system) focuses on the establishment of the SCAP-RU within community based food security committees and the development of their committee capacities to effectively implement this system. This system, which is technically complex, involving monitoring of a four point scale covering food security, health and sanitation, social relations (conflict) and the environment, will be introduced gradually. This activity does not have any negative impact on the environment.

Emergency Response Mechanisms includes security stocks (emergency stocks or cereal banks) and FFW. This activity requires limited construction of small warehouses which may require a limited amount of locally cut wood for roof beams. The necessary permits from local government conservation services will be obtained. The government conservation service will work with the beneficiaries to plant trees.

In addition, beneficiaries will be made aware of the proper use, management, and disposal of sacks or containers from FFW commodities.

3.2 Increase agricultural, livestock and fishing productivity

Africare will use and adhere to Chapter 1: Agriculture: Soil and Water Resources, including Irrigation of the USAID Africa Bureau *Environmental Guidelines for Small-scale Activities in Africa* 2nd Edition (2007) as primary guide for implementing and mitigating the environmental impacts of the following agricultural activities.

Under this objective, some important activities will be undertaken:

Community capacity building: This activity will be implemented to help targeted beneficiaries acquire new skills in strategic planning and intervention management. Other topics such as new techniques of production, seeds production, agriculture equipment maintenance will be covered. Villages' food security committees, farmers associations and cooperatives will be mostly targeted. The participative approach is at all levels of this activity.

Irrigated agriculture: approximately 12 small-scale irrigation perimeters (each about 30 ha in size) will be built and up to 20 rehabilitated during the first three years of the project. They will be located along the various arms of the Niger River, including construction or rehabilitation of the small canals that feed water into the perimeters, including measures to prevent water from flowing back into the source. Small diesel-powered pumps will be used to irrigate new and existing sites. Irrigation can occasion some environmental impacts because of the use of fertilizers, soil erosion, and increased soil salinity. Key environment management measures will be undertaken include planting trees and windbreak hedges around the perimeters, the use of compost and manure as fertilizer (as begun under the current project). Integrated pest management will be the preferred pest control method. In that unlikely event that chemical pesticides are deemed necessary, an IEE amendment will be submitted. No genetically modified seeds will be used. Only improved seeds and adapted to local conditions approved by the Malian ministry of agriculture and livestock will be promoted. The farmers will be trained to use the best farming practices and environmental protection techniques and soil erosion checks.

Cereals banks will be set up in villages without agricultural resources. This activity has no significant environmental impact.

"Food for Work" may be used as payment for labor to build or rehabilitate irrigation perimeters. Beneficiaries will be sensitized in the management of PL480 bags and containers in order to avoid environment degradation.

Recessional agriculture in the lakes: the project will support and encourage the existing production-- sorghum, millet, rice and some vegetables-- in the lakes. A baseline study on water sharing system will be done and results submitted to FFP. Existing dikes will be reinforced to control water flow in and out of the production sites. Control of water flow may have some environmental impacts. No fertilizer and no pesticide will be used. Only improved seeds adapted to local conditions approved by the Malian ministry of agriculture and livestock will be promoted. No genetically modified seeds will be used. Recommendations of CFR 216.3 (a) (2) will be respected.

Small scale gardening, training plots, and quickset hedges: 25 kitchen gardens of 0, 25 ha or more and training plots will be constructed in the targeted villages with wells as main water source. Planting windbreak and quickset hedges around the gardens will decrease the impacts of possible soil erosion . No genetically modified seeds will be used. Only

improved seeds and adapted to local conditions approved by the Malian ministry of agriculture and livestock will be promoted.

Wells for livestock: TFSI will construct livestock wells to assist herders since animals are important to regional food security and represent one of the main sources of income for women. Private firms will do the job under a contract. The project staff will run a sensitization program on hygiene. Potential environmental impacts will be reduced as mentioned in 4.2

Animal and poultry Production will require forage and silage from agricultural wastes. Bourgou (a type of grass used as animal feed) plantations will be developed. Bourgou grows without need for pesticides or fertilizer. No livestock will be introduced from abroad without authorization and verification by the ministry of agriculture to avoid introduction of animal diseases and to ensure higher livestock productivity.

Environmental protection « Brigades " will be set up and trained. These groups will work to plant bushes, living fences, and windbreaks to prevent soil erosion.

3.3 Increase the purchasing power of households

Livestock food banks: considering the importance of livestock in the region, the limited quantity of rain fall these past years, the reduction of pasture land, the installation of livestock food banks is quite necessary. The main role of livestock activity is to facilitate access to food for livestock and to diversify income generating sources. Management and food protection trainings will be organized for banks' committees. The project intervention will be limited to training and technical assistance and should not have important environmental impacts.

Stock breeding: men and women associations will undertake this activity where it is an historical job and where the agriculture potentialities are rare.

Activities are composed of milk and its by-products production. They will be sold to generate revenues, stock cramming. In addition, this activity is part of the third strategic objective of TFSI because milky products will be available for family use (mainly women and children). The environment impact of this activity is soil and water sources degradation. Africare will work closely with the government technical services (agriculture and environment services) to decrease impacts. CFR 216.3(a) (2) will be observed.

3.4 Improve the health and nutrition of households:

The objective is designed to sensitize the beneficiaries on the importance of nutrition particularly for women and children under 5 years old. Activities are: increase the use of food with nutritional value, treating children with malnutrition, identifying children with current sicknesses and referring them to health centers, children health and growth monitoring. Interventions are information, education and communication actions linked to the training of Ministry of health staff, villages' educators on nutrition, cooking demonstrations, implementing *the "foyer d'apprentissage et de recuperation nutritionnelle (FARN)".*

Construction and renovation of wells: domestic wells will be constructed or rehabilitated. The main environmental impact is the decrease water aquifer, risk of sickness due to creation of used water points, soil erosion during the construction and use of wells. 14 wells will be constructed or renovated 22 CFR 216.3 conditions will be respected and applied to minimize the impacts. In addition, training on hygiene, water treatment, and sanitation system will happen.

Water quality control: wells will be protected by the project and appropriate trainings will be provided to the different well's management committees. There will be a collaboration with the ministry of health to monitor the quality of water.

Africare will use and adhere to Chapter 16, Water Supply and Sanitation, of the USAID Africa Bureau *Environmental Guidelines for Small-scale Activities in Africa* 2nd Edtion (2007) as primary guide for construction and renovation of wells. Africare will also consult other sources as found on the ENCAP Water supply and Sanitation Web page (http://www.encapafrica.org/sectors/watsan.htm), including *Guidelines for the Development of Small Scale Rural Water Supply and Sanitation Projects in Ethiopia, by Catholic Relief Services and USAID, July 31, 2003.* and *The Sphere Handbook (2004): Humanitarian Charter and Minimum Standards in Disaster Response, Chapter 2: Minimum Standards in Water Supply, Sanitation and Hygiene Promotion.*

Construction of infrastructure is simply the beginning of the intervention and without sound mechanisms in place for the operation and maintenance (O&M) the activity will not succeed. Africare will require community contributions, ensure sound design and construction standards, link to environmental standards, obtain land use rights up front, emphasize sustainability early & *throughout* project, include equitable transparent O&M mechanisms, and plan for access to finances for future repair needs as detailed in the study "Built to Last: A Sustainability Study of Food-for-Work Infrastructure Projects 1999-2004", Mercy Corps, January 2005.

Impregnated Bed nets distribution:

The ministry of health and its partners are implementing a program to fight against malaria. Bed nets are distributed sometimes by the government as the main strategy to fight against malaria. Distributions and selling are done trough health centers or NGOs where possible.

TFSI will assist the health centers in its zones to distribute bed nets within the communities. The bed nets impregnation will be monitored by the project and make sure all environmental measures indicated by the ministry of health and WHO are respected. For the acquisition, distribution or marketing of insecticide treated bednets (ITNs), Africare will use WHO-approved brands of long-lasting treated nets and adhere to all relevant stipulations made in the USAID Africa Bureau Programmatic Environmental Assessment for Insecticide-Treated Materials in USAID Activities in Sub-Saharan Africa (ITM PEA). If a need for net treatment or re-treatment arises, the Team will draft and gain approval for a "Pesticide Evaluation Report and Safer Use Action Plan" (PERSUAP) for the ITN program.

4. RECOMMENDED MITIGATION ACTIONS (INCLUDING MONITORING AND EVALUATION)

4.1 Recommended IEE Determination

Following determinations have been done according to the environmental review presented in this IEE.

A **Categorical Exclusion** is recommended for 22CFR 216.2 (c) (2) (i), (ii), (iii), (v), (viii), (x), (xi).

These activities are:

- Literacy trainings
- Technical trainings
- Food security committees and other groups' capacity building
- Increase of health and nutrition best practices
- Capacity building of local health centers' staff
- Vaccination
- Promotion of revenue generating activities
- Information, education and communication training to prevent HIV/AIDS, Malaria and other frequent diseases
- Promotion of new agricultural varieties

A **Negative Determination** with **Conditions** is recommended in agricultural production, hydraulic interventions such as: Irrigation, production in the lakes, renovation or construction of irrigated perimeters and wells, small scale gardening, training grounds and training in agro forestry, food treatment and transformation, bed nets distribution to prevent Malaria according to 22CFR 216.3 (a) (3), (iii).

The following conditions are expected to minimize the environmental impact of planned activities on humans, animals, and physical environment.

4.2 Mitigation, Monitoring, and Evaluation

The following paragraphs describe the impact reduction actions for the different interventions.

4.2.1. Measures to reduce impacts of irrigated agricultural production

The sites will be selected with the local administration, technical offices (agriculture, environment) and the direct beneficiaries in order to avoid land ownership issues.

According to the Order 99-189/PRM of July 05, 1999, an environmental impact evaluation should be done with the environment management office of any new agriculture site covering over 10 hectares. Only improved seeds adapted to local conditions approved by the Malian ministry of agriculture and livestock will be promoted. No genetically modified seeds will be used under this program. There will be no pesticides or fertilizers used.

4.2.2. Measures to reduce impacts of cereals production in the lakes

The sites will be selected with the state administration, technical offices (agriculture, environment) and the direct beneficiaries in order to avoid land ownership issues.
According to the Order 99-189/PRM of July 05, 1999, an environmental impact evaluation should be done with the environment management office of any new agriculture site covering over 10 hectares.
Africare will also consider the technical document of USAID Africa: "Environmental guidelines for small scale activities in Africa".

4.2.3. Measures to reduce the impacts of scale gardening:
Africare will refer to the technical document of USAID Africa: "Environmental guidelines for small scale activities in Africa". Chapters 3.1 and 3.10 will be considered.

4.2.4. Measures to reduce impacts of training grounds and quickset hedges
TFSI will select and train farmers in each targeted village in seeds production techniques, planting trees, and doing quickset hedges on the perimeters. Training grounds are under the control of villagers and no pesticides will be used. They are in small number and situated within the village perimeter. This will allow the environment management office and Africare technical staff to monitor easily the installations.

4.2.5. Measures to reduce the impacts of food treatment and development of appropriate technologies
An emphasis will be put on identification of appropriate techniques for the treatment and transformation of vegetables (drying, packing, and preserving) and farmers training to master those techniques.
Africare will refer to the technical document of USAID Africa: "Environmental guidelines for small scale activities in Africa".

4.2.6 Measures to reduce the impacts of wells construction for livestock:
The wells' sites will be selected with the state administration, technical offices (*Service de l'Hydraulique - Environnement)* and the direct beneficiaries in order to avoid land ownership issues and soil degradation.

4.2.7. Measures to reduce impacts of household well construction or renovation:
New sites will be selected with the direct beneficiaries, the national hydraulic office, health service, environment service to prevent impacts on health and environment. The wells will be built with cement and small canals will be created with basins to reduce water loss and minimize mess around the wells. The water quality control will be done by the ministry of health.

4.2.8. Measures to reduce impacts of conservation system at the village level:
TFSI has a well designed training package for beneficiaries to be provided during the stores construction. Only local materials will be used with respect to the environment. Pesticides will not be used.

Whenever pesticide use will be compulsory, an amendment to the present IEE will be prepared and submitted to FFP for approval.

4.2.9. Measures to reduce impacts of Bed nets:

Mali is running a bed net distribution all over the country through the ministry of health. TFSI staff will not be directly involved in distribution and manipulation of impregnation products. TFSI staff will assist the ministry of health staff to pay respect to environmental rules.

4.3. Monitoring and evaluation:

The main objective of the environmental monitoring and evaluation system is to provide basic information to TFSI staff, partners, and beneficiaries on the environment changing factors resulting from the planned activities.

The system will also contribute to facilitate the appropriate changes in the planning, design, and implementation process of the project wherever environmental issues may appear.

The project staff will be trained on environmental impacts reduction.

Environmental impacts will be assessed through field survey.

5. Summary of Findings

5.1 Environmental Determinations

Categorical Exclusions are recommended by 22CFR 216.2 (c), (I), (i) and (22)CFR 216. (c) (2) (i) (ii) (iii) (v) (viii) (x) and (xi) for training and technical assistance to beneficiaries.

Activities are as follows:

- Food security management committees training on participatory diagnostic tools, animals cramming (for trade), marketing techniques and Micro enterprise promotion to increase agriculture profit (stocking)
- Training of nutritional education volunteers on growth monitoring, good feeding practices, identification of sicknesses (trachoma, diarrhea…)
- Vitamin A and iron distribution to women and children
- Training of local traditional leaders on HIV/AIDS and Malaria prevention
- Increase of micro credit activities and Creation of micro credit associations
- Promotion revenue generating activities
- Promotion of new agriculture products (onion, okra, beetroot, potato, carrot, lettuce, Soya)
- Training of local manufacturers on tools production

5.2 Conditions

A **Negative Determination with Conditions** is recommended in 22CFR 216.3 (a) (3) (iii) since activities need environmental impacts reduction measures. These activities are:

- New perimeter construction
- Production in lakes
- Small scale gardening
- Training grounds and quickset hedges
- Village foods conservation system and Food treatment
- Wells construction
- Livestock breeding
- Bet nets distribution (managed by the health centers).

7. ENVIRONMENTAL MANAGEMENT FORM TEMPLATES

Table 1: Overview of Mitigation and Monitoring of Negative Determination with Conditions Activities

Activity	Sub-Activity	Potential Environmental Impact and Causes	Mitigation Measures	Monitoring (Suggest Indicators)	Monitoring Frequency	Resp
Adult literacy	Construction of adult literacy and IEC centers	Limited wood cut for use in construction (roof beams)	Authorization to cut wood will be approved by the technical service of the "Conservation de la Nature" to ensure that the Malian regulation on the matter is respected.	- # & size of woods cut - # of centers constructed - - Authorization obtained to cut trees	Semi-annual	FSC, Cons de la Comı autho Coop
	Creation of cereal banks	No impact on environnement				
	Construction of storage warehouses by communities	Limited wood cut for use in construction (roof beams)	Authorization to cut wood will be approved by the technical service of the "Conservation de la Nature" to ensure that the Malian regulation on the matter is respected.	- # & size of woods cut - planting of new trees - nurseries creation	Quarterly	FSC comr meml
	Establish input outlets (shops):	Inappropriate seeds Sales of unauthorized fertilizers/pesticides	A safe house or spot will be required to the community and the inputs outlet shop management committee will be trained in management of the products	- # of outlets - products displayed	Quarterly	Coo The p

Activity	Sub-Activity	Potential Environmental Impact and Causes	Mitigation Measures	Monitoring (Suggest Indicators)	Monitoring Frequency	Resp
	Irrigated village perimeters construction	De-forestation Soil erosion, soil salinization, use of fertilizers	Tree planting will be done on the IVP Geophysical studies will be done Authorization of cutting trees will be approved by the technical service of the "Conservation de la Nature" Composting will be done Utilization of Organic manure will be required	- # of PIV - # of geophysical studies - Authorization obtained to cut trees	Semi-annual	FSC, Cons de la Comi autho Coop
	Reinforcement of dikes of protection	Crops flooding	Reinforcement of existing dike to control the flow of water in and out of the growing area	- the dike construction - the canals - the basins	- During construction - Semi annual	Coop Comi autho the c
	Pond improvement	Wrong location Floods	Studies will be performed to ensure that no negative impact on environment will occur	- # of ponds - Studies performed	- During construction - Semi annual	The *Regi* genie consu the p
	Nursery production	Deforestation Inappropriate plant species	Nursery growing volunteers will be trained in techniques by the agents of *the service de la conservation de la nature*	- # of nurseries established - tree species planted	Quarterly	Comi volur servi conse la nat the p field
	Construction of living fences around IVPs	Soil erosion	Tree plantation around the IVP	- fences constructed - # meters of fences	Quarterly	The Coop conse

Activity	Sub-Activity	Potential Environmental Impact and Causes	Mitigation Measures	Monitoring (Suggest Indicators)	Monitoring Frequency	Resp
						la nat the pr field
	Construct small Wells	Water-borne diseases	New sites will be selected with the direct beneficiaries, the national hydraulic office, health service, environment service to prevent impacts on health and environment. The wells will be built with cement and small canals will be created with basins to keep water in order to reduce loss.	- the wells construction - the canals - the basins	- During construction - Semi annual	Comi benef *Direc l'Hyc* and th Well:
	Set up animal passage corridors to Lake Tele	Damage to crop areas	Trees will be planted on each side of the corridor to keep animals from crop areas	- Corridor passage identified - # of m/km of trees planted	- During planting - Semi annual	Lake peasa servi conse la nat comr autho the pr speci
	Construction of a small structure by Lake Tele	No impact on environment	Small dam will be installed in order to allow fishermen to pass to the other side of the dike without destroying it. It also regulate the flow of water according to the needs	Dam constructed	- During planting - Semi annual	Lake farme comr autho the pr

Activity	Sub-Activity	Potential Environmental Impact and Causes	Mitigation Measures	Monitoring (Suggest Indicators)	Monitoring Frequency	Resp
	Construction of adequate irrigation Canals	Flooding	Proper drainage design of the IVP will limit the flow of excess fertilizers back into the water source. Small canals will be built or reconstructed to increase production. *"Motopompes"* will be used to irrigate new existing sites and new ones.. Some key environment management measures will be undertaken: planting trees, the use of compost as started during ISAGII. An irrigation system that will safely and properly conduct water to perimeters will be in place	- construction of canals	- During construction - Semi annual	Coop and tl
	Wells construction for gardening	Soil erosion Unsanitary location	Planting windbreak and quickset hedges around the gardens will be done to decrease the impacts. Wells constructed away from latrines	- # of wells dug - choice of location	- During digging - Semi annual	FSC Comı The p speci
	Improved seed introduction	No impact on environment				
	System of Rice intensification (SRI)	Abuse in the utilization of water and chemical fertilizer	SRI planting requires less water and fewer seeds and responds better to organic fertilizer,	Establishment of SRI	- During start - Quarterly	Coop volur the p
Health/ Nutrition	Distribution of impregnated bed nets	Malaria	The distribution of the nets will be performed by the Ministry of Health through the health centers. TFSI agents will not be involved	# bed nets distributed	Semi annual	The I cente and tl Staff

Activity	Sub-Activity	Potential Environmental Impact and Causes	Mitigation Measures	Monitoring (Suggest Indicators)	Monitoring Frequency	Resp
			to ensure that the distribution is done according the governmental policy.			
	Distribution of micro-nutrients	No impact	The vitamin A will be distributed by the health center in respect to the governmental policy			The H cente and th Staff
	Construction of wells for human consumption	Water-borne diseases Soil erosion	New sites will be selected with the direct beneficiaries, the national hydraulic office, health service, environment service to prevent impacts on health and environment. The wells will be built with cement and small canals will be created with basins to keep water in order to reduce loss. The water quality control will be done by the ministry of health.	- # of wells dug - choice of location	During construction and semi-annual	- Dur diggi - Sen
	Establishment of production units: livestock, soap making and cloth dying	Hygiene and Sanitation	The development of these units will be done in accordance with the technical service to ensure that the regulation on the matter is respected	- # of different units - mitigation measures taken for each case	During activities start up and quarterly	The servi proje benef

Table 2: Table of Status of Environmental M&E Indicators over the LOA

MONITORING INDICATOR	Base Line	YEAR 1			YEAR 2 Mid Term Evaluation			YEAR 3			YEAR 4 Final Evaluation			YEAR 5		
		Exp	Act	E/A	Exp	Act	E/A	Exp	Act	E/A	Exp	Act	E/A	Exp	Act	E/A
Impacts *(Data only available for Baseline, Mid-Term and Final Evaluation Years)*																
						%						%				
Outcomes *(Data only available for Baseline, Mid-Term and Final Evaluation Years)*																
						%						%				
						%						%				
						%						%				
Outputs *(Data available yearly)*																
				%			%			%			%			%
				%			%			%			%			%
				%			%			%			%			%

Exp: Expected; Act: Actual; E/A: Expected over Actual'